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JPRS Report

Proliferation Issues

PROLIFERATION ISSUES

JPRS-TND-91-013

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21 August 1991

[This report contains foreign media information on issues related to worldwide proliferation and transfer activities in nuclear, chemical, and biological weapons, including delivery systems and the transfer of weapons-relevant technologies.]

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Nuclear Reactor in Sichuan Begins Operation

HK0608061291 Hong Kong WEN WEI PO in Chinese
6 Aug 91 p 2

[By Yang Yung-nien (2799 3057 1628), WEN WEI PO southwest China correspondent: "Another Nuclear Reactor Goes Into Operation in Sichuan"]

[Text] Another nuclear reactor in Sichuan Province has gone into operation.

This nuclear reactor is very safe and is used mainly for carrying out research work in various scientific and technological fields as well as developing comprehensive doped monocrystalline silicon, producing high-density radioisotopes in short supply, and applying metachromatic irradiation to natural gems. The most prominent feature of this nuclear reactor is its ability to reuse the nuclear fuel refuse from a high-powered reactor and increase average burnup from 40 percent to 45 percent, saving more than 2 million yuan's worth of nuclear fuel every year. The completion of this reactor marks a innovative breakthrough in China's nuclear power high technology and provides a successful experience for the use of atomic energy for peaceful purposes.

Country To Sign NPT in Principle

Spokesman on Nuclear Issue

HK1108011891 Hong Kong SOUTH CHINA SUNDAY MORNING POST in English 11 Aug 91 pp 1, 5

[From John Kohut in Beijing]

[Text] Beijing has decided to sign the Nuclear Non-Proliferation Treaty (NPT), a move apparently calculated to temper the U.S. Congress' opposition to renewal of China's Most Favoured Nation (MFN) trading status and to improve its relations with Western Countries.

Chinese Prime Minister Mr Li Peng announced his country's decision in principle to accede to the treaty during a meeting with Japanese Prime Minister Mr Toshiki Kaifu, who arrived in Beijing yesterday as the first leader of a major industrialised country to visit Beijing since the 1989 massacre.

The decision to sign the NPT "is for the purpose of attaining the end of complete prohibition and thorough destruction of nuclear weapons", said Mr Wu Jianmin, spokesman for the Chinese Foreign Ministry.

Previously, China had refused to sign the treaty, insisting its nuclear weapons were for self-defence only and that it was in any case abiding by the articles of the treaty.

"Now things have changed," Mr Wu said during a briefing on the meeting between the two prime ministers.

Mr Wu did not specify what factors had induced China to change its mind about the NPT. But it is thought pressure from Western countries, led by the United

States, for China to control its exports of nuclear and other military technology was among its considerations.

Earlier this year the U.S. expressed concerns over reports China was offering Algeria technology which would enable it to build nuclear weapons.

Chinese military sales have been one of the key issues in the debate over whether the U.S. should renew China's MFN status.

When China would actually sign the treaty was not clear. Mr Wu said that the signing would come "in due course."

The decision did not come as a total surprise, as China had indicated it was giving the issue serious consideration.

However, the timing of China's announcement during Mr Kaifu's visit had not been expected.

Mr Wu said one of the reasons for the timing was that Japan had been the one nation to suffer from a nuclear attack.

With France having agreed to sign the treaty earlier this year, all of the major nuclear powers will be signatories to the NPT once China joins.

"The Nuclear Non-Proliferation Treaty can only be effective if there is universality of the regime," said Mr Sadaaki Numata, Mr Kaifu's spokesman.

There was no immediate response to the decision from the U.S.

But during a visit to Beijing in June, U.S. Secretary of State for International Security Affairs Mr Reginald Bartholomew said if China agreed to join the NPT, it "would be a major contribution to the world proliferation regime" with an impact which would go beyond the nuclear question, showing China's "commitment to a leadership role on non-proliferation."

Mr Kaifu also took the opportunity of his visit to ask China to co-sponsor a resolution Japan intends to present to the United Nations General Assembly in the autumn under which all transfers of conventional weapons would be reported to the UN—a resolution aimed at preventing the sort of regional arms race which led to the Gulf war.

Mr Li expressed a willingness to discuss the proposed resolution further with the Japanese, but expressed some reservations, saying a number of points on the implementation of such a resolution had to be studied, according to Mr Numata.

Among the regional issues discussed was Hong Kong. Mr Kaifu said it was important for China as well as the Asia Pacific region that the territory continue to prosper. In response, Mr Li pledged Hong Kong's system of capitalism would be preserved after 1997.

Premier Li on Nuclear Treaty

CM1208145991 Beijing RENMIN RIBAO OVERSEAS EDITION in Chinese 12 Aug 91 p 1

[Text] Beijing, August 10 (XINHUA)—Chinese Premier Li Peng announced here today that the Chinese Government has in principle agreed to participate in the nuclear nonproliferation treaty [NPT].

This is for the purpose of promoting comprehensive prohibition and thorough destruction of nuclear weapons, he explained.

Li made the announcement this afternoon during his talks with visiting Japanese Prime Minister Toshiki Kaifu in the Great Hall of the People.

He said China has always stood for nuclear nonproliferation, neither encouraging nor engaging in nuclear proliferation.

It is purely for the purpose of self-defense that China possesses a limited number of nuclear weapons, Li said, adding that China took the lead in proclaiming not to be the first to use such weapons.

Foreign Minister Qian on Stance

OW1208042791 Beijing XINHUA in English 0400 GMT 12 Aug 91

[Excerpt] Beijing, August 12 (XINHUA)—[passage omitted] Qian reiterated China's consistent stand on nuclear weapons:

- China stands for comprehensive prohibition and thorough destruction of nuclear weapons;
- China possesses a limited number of nuclear weapons purely for the purpose of self-defense;
- China will never be the first to use nuclear weapons, nor will it ever use them against countries without nuclear weapons; and
- China stands for nuclear non-proliferation. [passage omitted]

Soviet Foreign Ministry Lauds Nonproliferation Decision

OW1308155491 Moscow INTERFAX in English 1440 GMT 13 Aug 91

[Report by diplomatic correspondent Mikhail Mayorov from the "Diplomatic Panorama" feature; item transmitted via KYODO]

[Text] The Soviet Foreign Ministry greatly values China's inclusion in the Nuclear Arms Non-proliferation Treaty. The decision to sign the treaty was announced by the Premier for the CPP [as received] State Council, Li Peng, on Saturday during the official visit of the Japanese PM [Prime Minister], Toshiki Kaifu, in Peking.

The department for arms limitation and disarmament in the Soviet Foreign Policy Department considers that China's intentions will help strengthen nuclear arms control. The fact that all 5 members of the UN Security Council have signed is all the more importance now as discussions regarding the treaty's extension will take place in 1995. The USSR supports the treaty's extension and has expressed extreme concern that some countries have tried to undermine the treaty.

The Soviet Foreign Ministry does not regard China's decision as an isolated incident but as yet another step towards attaching greater importance to the Nuclear Arms Non-proliferation Treaty. Other events which play an important role in strengthening the treaty are, according to a Soviet expert on this matter, the inclusion of France and South Africa in the treaty. South Africa's decision also entailed the agreement of the so-called African Frontline States.

According to the Soviet Foreign Ministry it is now necessary to encourage Israel to sign the treaty. This could take place during the prospective Middle East Peace Conference; and might in turn have a moral effect on the Arab nations, who have until now refused to sign the treaty on the grounds that Israel has not signed.

India, according to some experts at the Soviet Foreign Ministry, has a negative attitude towards the treaty on nuclear arms control (see "DP" [Diplomatic Panorama] from August 5 1991). The same sources consider that it is therefore unlikely that China's decision will lead to a change in India's opinion. China's inclusion in the treaty, according to India, will not transform it into a state without nuclear capabilities. India will only stop activities which violate the treaty when serious changes have taken place world-wide in the field of nuclear disarmament.

Moscow Radio Commentary Praises Decision

OW1408022891 Moscow Radio Moscow in Mandarin 0900 GMT 13 Aug 91

[Commentary by station observer Alekseyev from the "Asian Affairs" program]

[Text] At a meeting with Japanese Prime Minister Kaifu in Beijing, Chinese Premier Li Peng said that China, in principle, has agreed to sign the international Nuclear Nonproliferation Treaty. Our station observer Alekseyev writes:

China's decision by China did not come as a surprise. In recent months, Beijing has on more than one occasion indicated China's readiness to promote nuclear nonproliferation. For example, Premier Li Peng mentioned this during a meeting with Secretary General Blix of the International Atomic Energy Agency last April, and Foreign Minister Qian Qichen expressed a similar view during his visit to Japan in June. It is rather natural, therefore, that the Chinese premier has stated that Beijing in principle agrees to sign the Nuclear Nonproliferation Treaty. Nevertheless, the significance of the statement should not be underrated.

It is by no means accidental that Li Peng's statement has aroused widespread positive response from around the world. I would now like to mention Washington's response. White House spokesman Fitzwater has made a statement, in which he said: The U.S. Government welcomes China's decision and believes this is a fairly important step. I would also like to point out that Beijing's decision is an inevitable product of the peaceful foreign policy pursued by China over the years. This policy has enhanced the prestige and trust China enjoys internationally. I am referring to Beijing's stand in support of nuclear disarmament. I only want to mention China's support for the Soviet-U.S. treaty on destroying intermediate- and shorter-range missiles and one-third of the offensive strategic weapons.

As for China's nuclear force, as Chinese Premier Li Peng told Japanese Prime Minister Kaifu, China possesses a

small number of nuclear weapons for defensive purposes. He also reiterated China's position of not becoming the first country to use nuclear weapons under any circumstance.

Beijing's statement agreeing in principle to sign the Nuclear Nonproliferation Treaty has special significance today. In view of a fundamental improvement in East-West relations, the possibility of the eruption of a nuclear conflict between the United States and the Soviet Union or any other nuclear power is diminishing. At the same time, the danger of nuclear technology getting out of control is growing. Baghdad's nuclear (?arsenal) is a clear indication of the danger. Therefore, there is a pressing need to take every measure to continue to strengthen control in this area. I am convinced that China's signing of this treaty will contribute significantly to solving this problem.

SOUTH KOREA

Seoul Considers Joint Denuclearization Offer

SK0408061591 Seoul YONHAP in English 0558 GMT
4 Aug 91

[Text] Seoul, 4 Aug (YONHAP)—South Korea is reportedly considering offering a joint declaration for denuclearization of the Korean peninsula to North Korea, on condition that Pyongyang prove it will not develop nuclear capability, an informed government source said Sunday.

The Seoul government may propose simultaneous inspection by the International Atomic Energy Agency (IAEA) or on-site inspection of each other between South and North Korea, the official said.

The agreement between Seoul and Washington that South Korea will now initiate the negotiation on nuclear issues on the Korean peninsula signifies that eventually, South and North Korea can make the Korean peninsula a nuclear-free zone through bilateral agreement, the official said.

South Korea may convey its intention to North Korea that it will not own nuclear arms and propose adopting a joint declaration for denuclearization of the Korean peninsula between the two sides.

The offer, however, is based on the expectation that North Korea will completely scrap its idea to develop nuclear capability and open its nuclear-related materials and installations, including nuclear fuel reprocessing facilities, to the IAEA inspection, the official said.

ARGENTINA

CNEA Privatization Plans Reported

91WP0123A Buenos Aires CLARIN in Spanish
25 Jun 91 p 17

[Report by Eleonora Gosman]

[Excerpt] Manuel Mondino came back pleased after his latest trip abroad. He brought back for the CNEA [National Commission for Atomic Energy] several agreements with "Nuclear Club" countries—including England and Canada—and he was selected to chair the Board of Governors of the International Atomic Energy Organization.

All this foreign success seems far removed from the organization's troubles at home. Growing debts are being piled up by companies like SEGBA [Greater Buenos Aires Electricity Services] and Water and Electricity for their electricity purchases from Atucha I and Embalse. And what is of even greater concern to the CNEA chairman, in the Department of Planning, Vittorio Orsi is drafting plans to reorganize and privatize the CNEA's production, a proposal that clashes with the CNEA's own master plan.

Friday afternoon Mondino told a group of reporters that his happiness began to dissipate when he caught sight of Ezeiza International Airport. He had barely touched his native soil when his colleagues rushed up to bring up to date on the problems. They told him that the electricity companies—including the two mentioned above—owe the CNEA \$47.5 million in unpaid debts. If this situation persists, there will be problems with maintaining the two nuclear plants.

Without enough money, the next shutdown of Embalse for maintenance could exceed 30 days. If that should happen, the national electricity system would have problems: nuclear power plants, with an installed capacity of 7.8 percent of Argentina's total stock, provide the network with 20 percent of the energy generated in Argentina.

Privatizations

"How far will the disorder in public enterprises go?" wonders Mondino. In reality, people in the CNEA feel that no one in the ministry of the economy is overly concerned about what happens in the CNEA. The under-secretary for electricity, Carlos Batos, has just made a half-hearted promise to try to get SEGBA and AyEE [Water and Electricity] to pay their debts.

The most difficult problem comes from the Department of Planning. Working hard, Vittorio Orsi got President

Carlos Menem to sign Decree 1022. This enables the Italian-Argentine businessman to assist the executive with control and oversight of investments in the CNEA, basically Atucha II and the Industrial Heavy Water Plant.

But the plans go even further. A document which has been circulating among high-level employees gives a glimpse of what Orsi and his advisers, Raul Boix Amat, director of the nuclear department of Techint, and Alejandro Parker of SADE [expansion unknown] are really thinking. This dossier, which is unsigned, deals with two distinct issues:

Politically, it suggests that after the conclusion of Condor-II, there is now only one obstacle left in relations with the United States: the nuclear issue. Not by chance, it proposes to break up the LPR [Radiochemical Processes Laboratory] which can extract plutonium by reprocessing fuels used in power plants. There is also talk of converting the Industrial Heavy Water (another "sensitive" component) Plant into an ammonia production facility.

Concerning energy, the report says that Argentina will not need any more nuclear power plants until well into the next century. It suggests terminating Atucha II, but turning it over to Siemens so that Siemens will complete it as a "turnkey" project. Then the CNEA would have to pay \$50 million, along with the German credit already granted.

To operate the two plants and possibly the third—when it is started—the plan is to set up a joint enterprise which will turn over the operation of the plants to a private licensee. The CNEA would handle the nuclear risk, major repairs, and plant shutdowns. The plans include privatizing uranium oxide production in the Cordoba Manufacturing Complex, which would be transferred to CONUAR [Argentine Nuclear Fuel Corporation, Inc.], a Perez Companc company which now produces nuclear fuel using technology under a CNEA license.[passage omitted]

Atomic Reactor Resumes Operation in Buenos Aires

PY1208033091 Buenos Aires LA PRENSA in Spanish
10 Aug 91 Second Section p 3

[Text] The Argentine-I reactor at the Constituyentes Atomic Center in this capital has again been put into operation. It has been out of service since the end of September 1983.

The reactor, the first of its type in Latin America, began operating in 1958 and was built entirely within the country by Argentine professionals and technicians. It has been out of service since 23 September 1983.

BRAZIL**Reaction to Accords With IAEA, Argentina****Inspection Not 'Intrusive'**

*91WP0126V Sao Paulo GAZETA MERCANTIL
in Portuguese 30 Jul 91 pp 1, 15*

[Commentary by Sao Paulo correspondent Jose Casado]

[Text] The Armed Forces nuclear program will stop being secret when Brazil—along with Argentina—accedes to the Safeguards Agreement with the International Atomic Energy Association (IAEA), a move expected to take place on 18 September.

That is the version being put out by the federal government which, after a decade and a half of international pressure, has ended up radically changing one of the principal tenets of its foreign policy—this country's steadfast refusal to sign the agreement, a basic component of the Nuclear Nonproliferation Treaty that is still being negotiated.

In theory, Brazil is ready to reveal its best-kept (and most expensive) military atomic secrets. It will submit to a series of IAEA measures that together constitute the "inspection of all nuclear material that enters and exits" its nuclear power plants and research laboratories—as Secretary of Technology and Development Jose Goldemberg explained to editor Maria Helena Tachinardi.

The military atomic project (which the government called "parallel" or "autonomous") got under way during the 1970's following the purchase of German nuclear technology for generating electrical energy.

The official nuclear program, contracted with Germany at a cost of about \$10 billion, according to the government's bookkeeping, has not turned out well, at least not so far. Its symbol is the nuclear plant at Angra dos Reis, which has structural and ecological problems. Because there have been so few days when it is operating, it has become known in the bureaucracy as the "glow-worm."

Meanwhile, the military atomic project has made enough progress to justify concerns in both the United States and Europe about the proliferation of technology and nuclear weapons, with Brazil in the role of one of the potential new and autonomous suppliers.

Clandestine deals with Iraq and China helped to create this international impression. Brazil was responsible for one boost to the Iraqi nuclear program when in 1981, it swapped 70 tons of treated uranium for oil from the Saddam Husayn government. Three years later, it concluded a secret agreement with China and obtained 220 kg of enriched uranium needed to run the Navy laboratories at Ipero (Sao Paulo State).

The Navy controls Brazil's most fully developed military project in the nuclear field. Its complex at Ipero is devoted to technological mastery of the complete cycle

for producing fuel and to building a reactor, the primary and secondary circuits that make up the basis of an atomic energy system. It is supposed to enter the trial phase (on an industrial scale) in 1995.

We know that officially, the military has already spent \$405 million on Ipero and managed to enrich uranium to a little more than 20 percent, operating about 500 centrifuges. Plus: they have achieved full autonomy in the techniques for manufacturing the equipment essential to uranium enrichment—the ultracentrifuge.

Navy Expenditures On Its Nuclear Program

The fuel cycle	\$180 million (90% in Brazil)
Reactor and its components	225 million (78% in Brazil)
Total*	\$405 million (84% in Brazil)**

*Officially, this total covers expenses from 1979 to 4 April 1991

**The rest represents imports

Source: Ministry of the Navy

There is absolute consensus among specialists that the only factor that determines whether a country can enrich uranium for war purposes is the scale of operations. (For example, with 2,000 centrifuges, Brazil would be able to produce as many as three atomic bombs a year, using uranium enriched to more than 90 percent).

There is also a general agreement that with its mastery of the ultracentrifuge manufacturing process, Brazil would move into a stage where it would be capable of supplying nations that have military programs—the nature of the atomic process makes it applicable to both civilian or military purposes—without significant technical obstacles.

According to information given by Minister of the Navy Cesar Flores to the Chamber of Deputies' Committee on National Defense, the military project at Ipero will "enable the country to build small and medium-scale atomic-fueled electric power plants with its own technology, and Brazil would not be dependent on foreign sources or need foreign guidance." Editor Claudia Izique learned that the official timetable calls for operation at scale [as published] starting in 1995.

The Navy's central objective is construction of a nuclear submarine by the end of the decade. For two years now, the Brazilian government has been criticized in Germany for allegedly diverting technical personnel, designs, and materials from the official electric power generating project to military research being conducted by the Navy.

From the strategic standpoint, the Navy project, if successful, would greatly alter the balance of naval forces in the South Atlantic. An important step in this direction was taken recently with the purchase, in Germany, of a conventional submarine (the "Tupy") that operates with hybrid technology. It can accommodate a low-power nuclear reactor (producing a maximum of 400 KW) that

would give it enough power to move at high speeds and total fuel autonomy, yet increase its weight by only a little more than 100 tons.

However, this is not the only segment of the military atomic program. The Air Force has put its laboratories in Sao Jose dos Campos (Sao Paulo State) to work in another direction: to try to master the technique of laser enrichment of uranium. (This method involves metallic uranium and hexafluoride, using a laser beam of 10,000 hertz—a continuous beam of 100 hertz has already been achieved).

The Army, at its facility in Guaratiba (Rio de Janeiro State), has made the least progress in its plan: to build a reactor that uses pure nuclear graphite. That is the type of reactor that produces the most plutonium, a vital ingredient in any nonpeaceful nuclear device.

With Brazil's accession to the IAEA Safeguards Agreement, the entire military atomic program will supposedly be subject to monitoring.

The semi-annual inspection by IAEA experts will not, however, be "intrusive"—as defined by technology secretary Jose Goldemberg. He says that inspectors will not be able to visit certain parts of the equipment that is subject to the safeguards "so as not to expose industrial secrets."

The agreement reached with Argentina also contains such a provision. Goldemberg gave a practical example: he told editor Maria Helena Tachinardi that IAEA inspectors "will not have access" to the nuclear submarine being developed at the Navy labs. "The bulk of the work will be done by Brazilian and Argentine inspectors," the secretary explained, indicating that the binational agency will be in charge of accounting for the materials and equipment and reporting the figures to the IAEA.

The government's argument is that the Navy labs do not have the capacity to pursue, nor are they devoted to, the objective of enriching uranium for aggressive military purposes per se. Furthermore, it is argued that in order to operate on a commercial scale Brazil would need 10,000 centrifuges, and only then could it think about becoming a supplier of enriched uranium.

There really is a "war" going on between the countries that have nuclear technology and those who are attempting, independently, to gain that knowledge.

The provisos in the application of the IAEA rules, however, may suggest that the announced government transparency on the subject of the atomic military project may not fully come to pass.

Some internal pressures are being felt in that direction. A segment of the top echelon of the military, the scientific community involved in the projects, and political leaders of nationalist factions are joining together on this point.

Within the National Commission for Nuclear Energy (CNEN) and in the military ministries there are those who say they are apprehensive about the possibility that the Fernando Collor de Mello Administration, or its successors, will open up to IAEA inspection the research laboratories that are under military coordination.

At the CNEN, editor Fatima Belchior heard the following argument: "We are going to hand over something (the ultracentrifuge technology) that was denied us." When Brazil signed a nuclear contract with Germany, it sought access to the ultracentrifuge technology. Urenco (a German-British-Dutch consortium) refused to transfer the technology. This led to the start of the military atomic project, which became relatively successful. Such internal pressures are in part responsible for Itamaraty's reluctance to sign the Nuclear Nonproliferation Treaty.

For now, the government has accepted the IAEA safeguards—but with restrictions typical of those demanded by someone who wants to guarantee continued military atomic secrecy.

Secrets Will Be Preserved

91WP0126W Sao Paulo GAZETA MERCANTIL
in Portuguese 31 Jul 91 p 11

[Article by Buenos Aires correspondent Paulo Totti]

[Text] President of the National Commission for Nuclear Energy (CNEN) Jose Luis de Santana Carvalho denied in Buenos Aires that the safeguards agreement with the International Atomic Energy Agency (IAEA), to be signed on 18 September, represents a retreat from Brazil's decision to preserve technology developed independently by this country and intended for strictly peaceful purposes.

Referring to a report published yesterday in this newspaper in which a CNEN source in Rio expressed a willingness to "hand over something that was denied us (the ultracentrifuge technology)," Santana Carvalho stated: "I am the one who speaks for CNEN and I can assure you that this is not in any way our intention."

According to the CNEN president, what Brazil and Argentina are negotiating with the IAEA is a system of accounting and control "that would detect the diversion of nuclear material to unauthorized purposes." That system, he explained, "provides that what enters has to be compatible with what leaves the nuclear facilities in the two countries."

The inspection, to be handled by Brazilian and Argentine inspectors accredited by the IAEA, "will not be intrusive, i.e., it will not penetrate areas where there are industrial-commercial secrets."

Santana de Carvalho, who has been in Buenos Aires since last Sunday for contacts with his counterparts at the National Commission for Atomic Energy (CNEA) of Argentina, said that what both countries are committing

themselves to with the IAEA is the same as they have already done with England, France, Italy, and Germany. "We will preserve the secrets of all the advances which, using our own resources, we have developed for peaceful purposes. The IAEA itself agrees with this position," said the CNEN president. Santana Carvalho also said that "all Brazilian nuclear installations"—and that includes, obviously, those being used for the Navy's nuclear sub project—"are already being inspected by the CNEN" and will continue to be after signing of the agreement with the IAEA. He emphasized, however, that his agency inspects only the nuclear facilities, i.e., the submarine reactor, which is then sealed and will remain so until the end of its useful life.

Opposition From Technicians

91WP0126X Sao Paulo GAZETA MERCANTIL
in Portuguese 31 Jul 91 p 11

[Article by Fatima Belchior, reporting from Rio de Janeiro]

[Text] The decision by the Brazilian Government to sign an agreement with the International Atomic Energy Agency (IAEA) in September is beginning to spark reactions from technicians in the nuclear energy community. Their main argument against this adherence to IAEA requirements—a step also to be taken by our neighbor Argentina—is that Brazil may lose its technological privacy, especially regarding the technology being developed by the Navy in order to build a nuclear submarine.

The example frequently cited by the technicians, some of whom are associated with research, is that of the ultracentrifuge developed by the Navy to enrich uranium. Brazil, they argue, achieved its ultracentrifuge independently. Now, faced with the possibility of opening those doors, Brazil also risks allowing access to the materials used in manufacturing the ultracentrifuges and to the system designed for operating them. In practice, that knowledge could reveal the commercial cost of its product, enriched uranium.

So the issue leaves the political realm and enters the commercial field. Business in the fairly competitive nuclear energy field probably amounts to \$50 billion to \$70 billion a year. In the past, the technicians point out, Brazil was denied access to the ultracentrifuge process of uranium enrichment, held by Urenco (Holland, England, and Germany). "That technology is not available for sale. Why are we going to hand it over on a silver platter?" asks one expert, who prefers that we not publish his name.

The fact is that in considering this "new opening," people forget that the agreement with the IAEA will be comprehensive (full scope safeguard) [preceding parenthetical phrase in English]. This means it will not be limited to record-keeping on the volume of fissile material at nuclear units, but can even extend to the levels of technological development.

Brazil and Argentina have already concluded an agreement that does not result in intrusive inspection, one that the technicians say does not pose a threat to Brazil's technological development in the nuclear energy field. What concerns them is the comprehensiveness with which that inspection could occur when Brazil moves into the IAEA universe.

That is why they believe the ideal situation would be to first consolidate the agreement already signed with Argentina, thus gaining experience in implementing the safeguard system adopted with our neighbor. In a second phase, they would move toward other bases for nonintrusive accords.

Nothing New in September

91WP0126Y Sao Paulo GAZETA MERCANTIL
in Portuguese 31 Jul 91 p 11

[Text] Brazil will implement the third stage in its anti-nuclear policy in September when it joins the International Atomic Energy Agency (IAEA). With the backing of several countries, including the United States through President George Bush, Brazil is likely to be named to chair the IAEA in the election scheduled for September.

"This year, the chairmanship should be occupied by a Latin American and Brazil has become a candidate for the post. This story that President Bush is campaigning on Brazil's behalf is just folklore. All the countries are unanimous that this is going to happen," explained Secretary of Strategic Affairs Pedro Paulo Leoni Ramos, who is supposed to represent Brazil at the September meeting.

President Fernando Collor's first step in laying to rest the possibility of manufacturing an atomic bomb in Brazil was to seal the well at Serra do Cachimbo. The second step was the signing of the safeguards agreement with Argentina. That agreement, signed two weeks ago at the Mexico meeting of Ibero-American presidents, will now be ratified at the IAEA meeting.

According to Secretary Leoni Ramos, no new data will be submitted at the September meeting. He told Agencia Brasil that the government believes that Brazil's willingness not to make military weapons has been made quite clear on the international scene.

FRG Reaction

91WP0126Z Sao Paulo GAZETA MERCANTIL
in Portuguese 30 Jul 91 p 14

[Article by Maria Helena Tachinardi, reporting from Brasilia]

[Text] Germany is paying attention to the negotiations between Brazil and Argentina and between those two countries and the International Atomic Energy Association (IAEA), headquartered in Vienna, because a decision was made by the German cabinet last August to continue nuclear cooperation with its partners only if

they subject their facilities to full IAEA safeguards, this newspaper learned from an official German source.

Brazil has been a customer of the German Government and of KWU ever since the two countries signed an agreement in 1975 for the supply of equipment and transfer of technology. That agreement was renewed in 1989 after intense debate in the German Parliament, during which the Green Party urged terminating the treaty with the Brazilian Government. In 1994 there will be another discussion as to whether or not to renew the accord, which calls for a review every five years.

Brazil intends to complete only two of the eight power plants originally contracted—Angra II and III, and even this can only be accomplished with great difficulty. The German side has already built all the equipment for Angra II and delivered it. The problem is Brazil's lack of funds to do the construction work at both sites, a German source told this newspaper.

IAEA Inspection

At any rate, when they do begin to function both Angra II and III will be subjected to IAEA inspection, just as has already occurred with Angra I, whose reactor was purchased from Westinghouse, of the United States.

To the German Government, it is still not clear what kind of safeguards Brazil and Argentina will subject their nuclear facilities to. There are doubts in Germany as to whether the agreement with the IAEA will be comprehensive, of the "full scope safeguard" [preceding three

words in English] type, and whether the equipment and facilities really will be inspected. The Germans do not know yet whether anything will be excluded from the inspection—such as the autonomous or parallel programs conducted by the armed forces.

The German Government is following the progress of discussions between Brazil, Argentina, and the IAEA through its delegations in Vienna and in Geneva, where the disarmament talks are being held. But it has still not obtained details on the safeguards.

Cooperation Facilitated

Following the decision made in Bonn last August, cooperation with Germany in the nuclear energy area will be made easier if Brazil signs safeguard agreements with the IAEA or becomes a member of the Nuclear Nonproliferation Treaty. The fear is that without those instruments of control, the country that receives the technology may use it for military purposes. The sensitive technologies in the nuclear and space fields are classified as dual-use, and can be used for both military and civilian ends.

An agreement with the IAEA would have the effect of reassuring Germany that the technology it is transferring is under control, yet without implying disrespect for its partner's sovereignty. The IAEA's "full scope safeguard" [preceding words in English] would alone guarantee the transfer of nuclear technology. It is not a requirement of the German Government that its partners accede to the Nuclear NonProliferation Treaty, the German source commented.

INDIA

Rao Cool to Nuclear Talks With Pakistan

91WD1039 Madras *THE HINDU* in English
14 Jul 91 p 1

[Article by K. K. Katyal: "Pak. Nuclear Talks Plan: PM [Prime Minister] Cool"]

[Text] New Delhi, 13 July—The Prime Minister, Mr. P.V. Narasimha Rao, recently received a phone call from his Pakistani counterpart, Mr. Nawaz Sharif, on the hotline—the first after the change of guard in New Delhi. The main subject was Pakistan's proposal for a five-nation initiative to stop nuclear proliferation in South Asia. Mr. Sharif sought the prime minister's reaction to it. The conversation took place not long after the assumption of office by Mr. Rao, but it remained unpublicised.

Mr. Rao was not enthusiastic about the proposal. "We have to consider it. India has taken a stand on the issue of non-proliferation and we will examine the proposal in the light of that position," he said in so many words.

Mr. Sharif had announced the proposal—after considerable preparatory work—in the first week of June—on the eve of the visit of a high-level Pakistani delegation to the U.S. on a fence-mending mission. India, then in the midst of elections, saw it as an exercise in propaganda, while reiterating the known position—that nuclear-free zones create a myth of security in the midst of continued proliferation elsewhere and that a more realistic approach will be to work for time-bound global destruction of nuclear weapons.

Mr. Rao spelt out his views on the same line in an interview with me last week. The Pakistani proposal, according to him, was not acceptable. "The reasons," he said, "are clear. They have been given time without number. We have a principled stand that this kind of thing will not work on a regional basis. It has to be total. We will never be a party to an arrangement in which no one knows what the other country is going to do in spite of the agreement."

However, the fact of the call from Islamabad is significant. The hotline, revived after the former Prime Minister, Mr. Chandra Shekhar's meeting with Mr. Sharif at Male, continues to operate and is being put to use.

Regional Nonproliferation Efforts Considered

91WP0132A Madras *INDIAN EXPRESS* in English
16 Jul 91 p 8

[Article by Brahma Chellaney]

[Excerpts] A series of recent developments have helped focus international attention on south Asian nuclear proliferation. South Africa has abjured the pursuit of nuclear weapons and signed the Nuclear Non-proliferation Treaty (NPT). Two weapons states outside

NPT's fold, France and China, have indicated their willingness to embrace the treaty, although Beijing has indicated it needs "some time" to consider formal acceptance of the pact. France, however, wants China to join it now in signing the treaty. The 1991 Gulf War has left Israel with a nuclear monopoly in West Asia—a situation that pleases its strategic ally, the United States. President Bush's West Asian arms control initiative will in effect enable Israel to maintain its present clandestine nuclear arsenal in exchange for acceptance of international safeguards on its aging Dimona reprocessing plant. In Latin America, Brazil and Argentina have agreed to a common system of nuclear accounting and control as well as reciprocal inspections on all their atomic facilities. [passage omitted]

Unique situation

With both Pakistan and India armed with weaponsusable fissile materials and nuclear delivery capabilities, it may be difficult to reverse the process of nuclearization. A pact like the South Pacific-Nuclear-Free-Zone Treaty provides no model for South Asia. In fact, we can only discuss possibilities of a weapons-control—not a weapons-free—regime in South Asia. No nation has ever relinquished its nuclear option, either voluntarily or through a regional pact, after having acquired a full-fledged weapons capability. Israel and India are at present the only non-NPT signatories outside the club of weapons states with such indisputable capabilities. A second related point is that once the technical genie is out of the bottle, technology alone cannot suppress it. [passage omitted]

The single more effective non-proliferation proposal for South Asia is a Comprehensive Test Ban (CTB) treaty. A CTB would emasculate the Indian and Pakistani programmes and block a nuclear arms race on the subcontinent because the development of reliable weapons would be stymied by such a ban. However, the three countries pushing strongly for a South Asian non-proliferation system—the United States, Britain and France—remain the only nations opposed to a total test ban because it would hinder their development of more sophisticated nuclear weapons. Coupled with an international ban on ballistic missile flight testing, a CTB offers the best path to halting both vertical and horizontal proliferation. India and Pakistan have both supported the United Nations proposal to convert the 1963 Limited Test Ban Treaty into a CTB.

Economic angle

There is little doubt that an economically bankrupt India will come under increasing pressure from the West to slow down its nuclear and missile programmes and accept a regional nuclear verification arrangement with Pakistan. It is, therefore, important for national policy-makers and diplomats to aggressively market the positive features of the Indian policy on disarmament, such as the readiness to accept a CTB.

Regionally, greater political, economic and military cooperation among China, India and Pakistan will help foster the necessary conditions for building confidence-building nuclear transparency. The development of nuclear transparency, however, is likely to be a slow process because it would entail major steps to make nuclear activities more open and less threatening to an adversary by agreeing to extensive and detailed data exchanges, cooperative measures and reciprocal site visits. This process will be aided by closer cooperation among the three neighbours on conventional military matters. Such cooperation will also considerably ease regional tensions. India and Pakistan have made a good beginning in this direction by signing some important confidence-building agreements and bringing into force this year the pact not to attack each other's atomic facilities and storage sites. There is also a pressing need for similar confidence-building measures between China and India. The three countries should discuss reducing their conventional forces, a need that is being underlined by the economic crises in Pakistan and India. Mr. Sharif has said: "We are prepared to adopt measures for mutual and balanced reduction of forces consistent with the principle of equal and undiminished security at the lowest level of armaments." To Indian military planners, who face cuts in defence spending, this principle should make a lot of sense. [passage omitted]

Joint U.S. Nonproliferation Talks Needed

91WD10604 Madras *THE HINDU* in English
18 Jul 91 p 8

[Article by C. Raja Mohan: "Non-Proliferation: New Perceptions"]

[Excerpts] Conventional wisdom has it that non-proliferation issues, in particular the nuclear one, will continue to divide India and the United States. The traditional approach in the Indo-U.S. dialogue, has been either to skirt these issues or to reiterate their divergent views. But the time has come for India and the U.S. to seek a common ground on the problems of non-proliferation that have acquired a new urgency in the international security debate.

The search for such cooperation is likely to be elusive until major misperceptions in both the capitals are corrected. In India there is widespread misreading of the Bush Administration's policy on nuclear non-proliferation. In the recent parliamentary debate on the confidence motion moved by the Congress(I) Government, the Opposition leaders hurled charges that the Government, in desperate need for IMF loans, is under pressure to sign the much reviled nuclear Non-Proliferation Treaty (NPT).

The Prime Minister, Mr. P. V. Narasimha Rao, has clarified that there is no such pressure and that India's opposition to the NPT remains as solid as ever. Despite the paranoia of the Indian elite on the alleged American domination of the world and the restoration of Pax

Americana, there is not a shred of evidence in American policy pronouncements that Washington is seeking to link international assistance to an acceptance of the NPT. To be sure, a number of Western publicists and the Japanese Prime Minister have hinted at such a linkage, but it is certainly nowhere near being the official policy in Washington. [passage omitted]

On the nuclear front, the problem of preventing the further spread of nuclear weapon materials and related technologies will remain a key issue on the international agenda. As Iraq has shown, signing the NPT is no guarantee of nuclear abstinence. Although India has opposed the NPT and has been critical of the export control mechanisms (the so-called London Club) relating to nuclear non-proliferation, it has shown the utmost care not to export nuclear materials and other sensitive technologies in spite of entreaties from West Asia. This responsible Indian behaviour is in sharp contrast to the libertarian nuclear export policy of China, and the nuclear links of Pakistan in West Asia.

India cannot, however, forgo the advantages of legitimate nuclear exports to earn foreign exchange. The Chairman of the Atomic Energy Commission, Dr. P.K. Iyengar, has recently declared India's readiness to export nuclear services, particularly in reprocessing. A success of this policy as well as an effective Indian policy on global proliferation controls demands that India join the London Club of nuclear exporters. Possible Indo-U.S. cooperation in proliferation control need not be limited to the nuclear sector, but could encompass chemical weapons proliferation, spread of missiles technology and of conventional weapons.

New Delhi and Washington must consider the possibility of India joining the global efforts on proliferation control through its membership of the London Club on nuclear exporters, the Australia group on chemical exports and the Missile Technology Control Regime (MTCR). In return for India's cooperation with the anti-proliferation efforts, India must, however, be treated with greater trust and confidence in relation to its import of high technology and dual use items from the U.S. Since the entire edifice of improved Indo-U.S. relationship since the mid-Eighties has been based on cooperation in high technology areas, intensive Indo-American dialogue on non-proliferation issues has become more urgent than ever before.

Threat From PRC Missiles in Pakistan Noted

91WD1067 Bombay *THE TIMES OF INDIA*
in English 20 Jul 91 p 7

[Excerpt] New Delhi- 19 July (PTI & UNI)—The acquisition of unspecified number of M-111 Chinese ballistic missiles by Pakistan is posing a serious threat to India, the defence minister, Mr. Sharad Pawar, informed the Lok Sabha today.

He told Mr. M. V. Chandrashekara Murthy and two others that the government was closely monitoring all

developments impinging on national security and take appropriate measures to ensure full defence preparedness. [passage omitted]

Commentary Criticizes Pakistan's Nuclear Proposal

BK0208133391 Delhi All India Radio General Overseas Service in English 1010 GMT 2 Aug 91

[Kripasagar commentary: "Anti-India Pak Lobby"]

[Excerpt] Thanks to the U.S. Senate's move to nullify the effect of the House of Representatives capricious legislation bracketing India and Pakistan under the Pressler Amendment. [sentence as heard] The Pakistan lobby, which is now widely recognized, used the looted millions of Bank of Credit and Commerce International for winning over eminent personalities in the U.S., sparing no efforts to ensure that India would continue to be kept within the purview of the Pressler Amendment effect. Senator Cranston, who in 1987 succeeded at the initial stage to have a similar anti-Indian amendment passed once, again attempted to do the same. As in 1987, Senator Glenn outmaneuvered the move and through his amendment recognized that there can be no meaningful nuclear nonproliferation regime in this part of Asia unless China and all other nuclear-weapon states are brought within it. Almost recalling Indira Gandhi's words that radioactive clouds do not recognize international borders, Senator Glenn has asserted that the problem of nuclear proliferation emerged as fundamentally a global problem. The environmental and political consequences of a nuclear war in South Asia could in no way be characterized as only regional in nature. This is a befitting reply to Pakistan Prime Minister Nawaz Sharif's dubious proposals for a South Asian nuclear-weapon-free zone and his insistence that the nuclear issue in South Asia is a regional issue to be dealt with by India and Pakistan alone. That the Glenn move was adopted in the Senate by consensus without a dissenting vote, unlike the Pakistan-inspired move in the House of Representatives which only had majority support, is not without significance. Senator Glenn has also highlighted that if China continued to pose a nuclear threat to India and to provide bomb technology to Pakistan, prospects for a regional nonproliferation regime would vanish. By nonproliferation regime, the senator implies a regime of restraint and arms control and not one without nuclear weapons, since he appears to recognize the reality that the situation in the subcontinent has gone past that stage.

The Pakistan prime minister, Nawaz Sharif, in his interview to ARAB NEWS, has again referred to his proposal for a five-power conference with Pakistan, India, China, U.S., and USSR sitting together to seek ways of keeping the subcontinent nuclear-free. In his speech, he said: I would like to propose specifically that the United States, the Soviet Union, and China consult and meet India and Pakistan to discuss and resolve the issue of nuclear proliferation in South Asia. That would indicate that the three major nuclear-weapon powers should first consult

and then come up with the results of their exercise to discuss the issue with India and Pakistan. Senator Glenn, the originator of the U.S. nonproliferation act, does not subscribe to Mr. Nawaz Sharif's regional approach. He said in South Asia, as in Latin America or any other region, the problem of nuclear proliferation emerges again as fundamentally a global problem. The environmental and political consequences of a nuclear war in South Asia could in no way be characterized as only regional in nature. China, for example, will play a crucial role in a future nuclear regime development in South Asia. [passage omitted]

Concern Expressed Over Nuclear Proliferation

BK0208045191 Delhi All India Radio Network in English 0240 GMT 2 Aug 91

[Excerpt] India has expressed concern at the proliferation of nuclear weapons and ballistic missiles technology in its neighborhood. The annual report of the Defense Ministry says Pakistan is continuing to procure military hardware and technology far beyond its legitimate defense requirements. It says the government is closely monitoring the developments to take necessary measures to safeguard the country's security. The report also expresses concern over Islamabad's continued support to militants and subversives in Punjab and in Jammu and Kashmir. It says to meet the multidimensional threat, the three wings of the armed forces are continuing their modernization drive. The defense minister, Mr. Sharad Pawar, says the center will give priority to strengthening patrolling along the Tamil Nadu coastline to prevent infiltration by LTTE [Liberation Tigers of Tamil Eelam] militants. [passage omitted]

Surface-To-Air Missile Successfully Tested

BK0708125691 Delhi All India Radio Network in English 1230 GMT 7 Aug 91

[Text] India today successfully launched Prithivi-3 ground-to-air missile at Sriharikota in Andhra Pradesh. Announcing this at a press conference in Bombay, the defense minister, Mr. Sharad Pawar, said the ground-to-air missile was launched at 1058 [0428 GMT] this morning. With this India has now joined the select group of five countries having this capability.

Rao: No Change in Nonproliferation Stand

BK1308145091 Delhi All India Radio Network in English 1430 GMT 13 Aug 91

[Text] The prime minister, Mr. P.V. Narasimha Rao, will pay a three-day visit to Germany from the fifth of next month at the invitation of the chancellor, Dr. Helmut Kohl. Announcing this, a spokesman of the External Affairs Ministry said in New Delhi today that during his visit, the prime minister will hold substantial talks with Dr. Helmut Kohl and with other political and business leaders with a view to promoting closer cooperation between the two countries. The prime minister

and Dr. Kohl will jointly inaugurate in Bonn, the festival of India on the seventh of September.

There is no change in India's stand on the signing of the nonproliferation treaty. Responding to questions by newsmen, an External Affairs Ministry spokesman said that New Delhi's views on the signing of the treaty has not changed. He said there is no pressure on us for the signing of the treaty, or to link the signing with any other matter.

THE TELEGRAPH Looks Into BCCI Allegations

BK1308115391 *Delhi All India Radio General Overseas Service in English 1010 GMT 13 Aug 91*

[Commentary by S. Srinivasan, principal correspondent of THE TELEGRAPH]

[Excerpt] Billed as the largest bank fraud in world's financial history, the affairs of Bank of Credit and Commerce International—BCCI—are getting curious. The allegations range from the Bank having links with gun runners, drug dealers, CIA operatives, and nuclear weapons component smugglers, to name a few. The investigators all over the world are now coming out with startling details on the \$20 billion bank which was founded by a Pakistan national, Agha Hasan Abedhi, in 1972 with dreams of making it into the biggest bank of the world in 25 years. Abedhi himself is unable to say anything on his shattered dream as he is fighting to recover from a brain damage caused by repeated heart attacks. The Karachi-based banker founded the bank in Luxembourg with 47 branches, 24 in Britain and others in 12 countries. The BCCI Overseas has 63 branches in 28 countries which include India. The bank has spread its tentacles from Britain to the United States where it is said to have secret stakes over several banks which were being run as its front companies.

The Indian operations of the BCCI has also kicked up a big controversy. The three major allegations against the bank, which has emerged in the Indian newspapers, are that the bank in collusion with the key officials and politicians have diverted tens of millions of dollars from India's economy into its accounts, that the bank was used to fund purchase of arms and terrorist operations, and the bank has misused American aid money for funding Pakistani nuclear programs. The U.S. Senate committee is investigating an allegation that the bank, in collusion with top industrialists and officials, have diverted illegally millions of dollars from India. The revelation was made by private investigator Mr. Michael Hershman, of the Fairfax fame. Mr Hershman, who has worked with the Indian Government, has said that he had collected as far as in 1986, but did not pursue any more as the U.S. revenue officials did not take any interest in the matter. The modus operandi, according to him, was that the slush money was moved through companies. The second allegation is over discovery of some indiscriminating documents from Bombay branch of the bank which were antinational in character.

Thirdly, doubts were expressed whether the funds were used to promote Pakistan's clandestine nuclear program. The news reports quoting WALL STREET JOURNAL have alleged that a retired Pakistani General Enamul Haq was arrested by German authorities on July 11th at Frankfurt Airport as he arrived with a phony passport. According to the investigators, the general was accused of evading American customs laws in shipping sensitive and strategic materials. The report says that the documents in the case show that these were financed by units of BCCI. [passage omitted]

IRAN

Commentary Criticizes UK Nuclear Sales to Iraq

LD2807114991 *Tehran Voice of the Islamic Republic of Iran First Program Network in Persian 0956 GMT 28 Jul 91*

[Unattributed commentary]

[Text] Revelations concerning Britain's sale of radioactive material to Iraq have greatly embarrassed Britain's ruling Conservative Party. According to an official document released by a British parliamentary committee, the British Department of Trade and Industry had issued permits for the export to Iraq of material and equipment used for the production of atomic weapons.

The issue, which has caused amazement among political observers as well as British politicians, is that the export of such material continued even up to three days after the Iraqi aggression against Kuwait. These revelations are made at a time when the Conservative Party is already the object of accusations due to the financial fraud carried out at the BCCI [Bank of Credit and Commerce International].

In the view of political commentators, the revelations regarding the sale of nuclear material to Iraq by Britain will have important domestic and international repercussions. The international repercussions will demonstrate that the very harsh and decisive tone of British officials about the need to control and prevent the proliferation of atomic weapons, as well as the issue of establishing security and stability in the Middle East, should not be regarded as anything other than a political gesture; because providing means for the production of nuclear weapons to a government with the characteristics of the Iraqi Ba'th Party will clearly demonstrate that the British Government lacks any credibility in her positions.

On the other hand, the same political analysts believe that the issue of military cooperation with Iraq is also true of most Western countries. Therefore, it seems that the greatest damage done by this issue will be in Britain's domestic affairs. This is at a time when, during the past few months, the Conservative Party has been working hard to put the country's economic situation into shape, and has been relatively successful in this path—so much

so that the rate of inflation has been reduced from 11 percent to about 5 percent. There are also some signs that the economic recession is gradually moving toward improvement. During this period, the Conservative Party was also gradually regaining its popularity in the public opinion polls, and the popularity gap with the Labor Party was being reduced. Also, Britain's hosting of the seven industrialized countries had improved the standing of the Conservative government.

In any case, the issue of financial fraud at BCCI on the one hand, and the revelation concerning the sale of nuclear material on the other hand, has placed the Conservative Party—which is only 11 months away from national elections—in a tight spot. British Prime Minister John Major will need every single day of the remaining months to gain victory in the forthcoming elections, toward which he has invested a great deal of effort. Meanwhile, the opposition parties—Labor and the Liberal Democrats—will try to make the best use of this issue, and the position of the Conservative Party will be further weakened.

Nuclear Energy Chief Denies Weapons Capability

*LD0308170191 Tehran IRNA in English 1309 GMT
3 Aug 91*

[Text] Tehran, Aug. 3, IRNA—Head of Iran's Atomic Energy Organization (IAEO) Reza Amrollahi Saturday reiterated that "Iran is not capable of making atomic bombs" thus refuting recent allegations by Western news media in this connection as "baseless."

"Our objective in promoting nuclear industries is merely its peaceful use specially in the field of atomic energy and its application in agriculture and medicine," Amrollahi stressed.

He noted that owners of nuclear industries and the superpowers were throwing obstacles "on our way and those of the Third World countries in order to hold these industries in their own control." However, he added, "with regard to political issues, our grave responsibility is quite clear."

Amrollahi was speaking at the inaugural session of the 23rd nationwide training course for protection against rays.

IRAQ

Foreign Ministry Source on Chemical Material

*JN0308112891 Baghdad INA in Arabic 1057 GMT
3 Aug 91*

[Text] Baghdad, 3 Aug (INA)—A responsible Foreign Ministry source has refuted the deliberate distortion by Western news agencies of statements made by Rolf Ekeus, executive chairman of the special UN committee charged with supervising the implementation of UN Security Council Resolution 687, to the effect that the

international inspection teams have found four to five times the quantity of chemical [al-kimyawiyah] raw material declared by Iraq.

In a statement to INA, the source said this deliberate distortion of the statements by Ambassador Ekeus is part of the unfair campaign by Western media to cast doubt on Iraq's cooperation with the special UN committee and find pretexts to launch a new aggression and continue the economic blockade against its people.

Following is the text of the statement made by the Iraqi source:

On 30 July 1991, Ambassador Rolf Ekeus, executive chairman of the special UN committee charged with implementing Paragraph 8-C of Resolution 687, stated that the clarifications submitted to the UN special committee raised the quantity of the chemical war materials to four to five times the quantity declared by the first Iraqi statement. Western media have deliberately distorted Ambassador Ekeus' statements. They claimed that the inspection teams found four to five times the quantity of the chemical raw material declared by Iraq.

To state the facts as they are, we say that on 18 April 1991, Iraq submitted a list of the materials included in Paragraph C of Resolution 687, including the chemical raw material, which was collected expeditiously with the emphasis on counting the important material at that time. After the Iraqi parties made a complete inventory of all this material, including large quantities of less important and less hazardous raw material, when certain military installations where this substance was stored became accessible after being purged of mines and the effects of the aggressive bombardment, the responsible Iraqi quarters submitted on 16 May 1991 a comprehensive list of the chemical raw material, which was actually four to five times the quantity listed in the first announcement before the visit to Iraq by the first chemical inspection team—the visit that took place from 9 to 14 June 1991. During its visit, the team did not find anything to contradict the Iraqi announcements.

On the contrary, the inspection team emerged with impressions which it noted in its press statement issued at the end of the inspection. The statement noted that the relevant Iraqi authorities were fully cooperative with the inspection team, that the team did not verify the existence of any undeclared activities, and that it found no indication that Iraq deliberately tried to mislead the mission.

This deliberate distortion of Ekeus' statements is part of the unjust campaign launched by the Western mass media which, by casting doubts about Iraq's cooperation with the special committee, aims to find justifications for launching a fresh aggression against Iraq and maintaining the economic blockade imposed on its people. This campaign also aims to peddle new UN Security Council resolutions to impose custodianship on the people of Iraq and harm Iraq's sovereignty and independence.

Foreign Minister Comments on Biological Inspection Team

JN0508074591 Baghdad INA in Arabic 2100 GMT
4 Aug 91

[Text] Baghdad, 4 Aug (INA)—A Foreign Ministry spokesman has stated the following:

On 2 August 1991, the biological [al-biyuluji] inspection team appointed by the special committee in accordance with part C of Resolution 678/1991 arrived in the country.

The Iraqi side and the inspection team held a meeting on the evening of the same day in which the Iraqi side explained its readiness to cooperate fully, provide all the necessary explanations, and answer any additional queries to complement information presented earlier through correspondence regarding technical information and detailed lists on the biological materials and activities for various purposes inside the country.

In this evening session, they affirmed what was reported in our message in response to the letter from the special committee of 14 March 1991 regarding the nonexistence of a central research laboratory for military biological purposes.

However, the Iraqi side informed the inspection team of the existence of research work regarding the biological factors for military purposes in one of the locations within a general research center which does other research work.

The Iraqi side also affirmed that Iraq completely halted this biological research work in the spring of 1990 when it anticipated the possibility of an aggression on it. It also affirmed the nonexistence of any biological activity for military purposes, or any biological weapons or instruments at all.

During the two days after this meeting, the inspection team visited the abovementioned location.

The Iraqi side presented all the clarifications and lists that were asked of it. It was also very cooperative in all ways to facilitate the team's mission.

On the evening of the second day of the visit, a meeting was held with the representatives of the Ministries of Health and Agriculture to get clarifications about biological activities which fall under the realm of these two ministries.

Reports on Plutonium Production, Inspection Team

Clarification of Amount Produced

JN0608202591 Baghdad INA in Arabic 1917 GMT
6 Aug 91

[Text] Baghdad, 6 Aug (INA)—Iraq has refuted the allegations which accompanied Iraq's making public its

possession of tiny amounts of plutonium. An official spokesman at the Foreign Ministry said tonight that Iraq announced on 27 April this year—not 27 July as reported by some news agencies—that Iraqi scientists prepared a quantity of plutonium at its research laboratories.

The spokesman told INA that it was the Iraqis who listed the quantities of plutonium solutions and oxides in the materials list as part of Iraq's commitment to help inspection teams complete their work. He said: The amount of plutonium contained in these solutions and oxides does not exceed 2.7 grams.

The official spokesman explained that all the fourth inspection team did was wire the list to the International Atomic Energy Agency (IAEA) headquarters in Vienna after the list was handed to them by the Iraqi side. The spokesman commented on attempts to exaggerate matters and to claim that Iraq was working to produce a nuclear weapon. He said: The IAEA and any specialist know well that such small quantities can only be part of laboratory research work and that if such quantities are accumulated to produce one weapon, over 100 years would be needed (?to produce) a sufficient quantity to make such a weapon.

The spokesman expressed amazement at the concern voiced by some of those interested in the issue. He said: We do not know the reason behind the concern of Mr. Calucci [name as received], assistant chief of the special committee, as reported by news agencies, about Iraqi scientists' ability to prepare this substance, which can be prepared at any radiochemical laboratory.

The spokesman wondered why Mr. Calucci was not concerned when Iraq first made an announcement about plutonium in April this year.

The Foreign Ministry spokesman highlighted the appreciation shown by the head of the fourth nuclear inspection team for Iraq's publicization of these amounts, which he considered an expression of Iraq's goodwill. He wondered why the U.S. and British representatives at the Security Council do not take a similar position. Why do they take a contrary stand, as reported by the news agencies?

He affirmed that these positions are further evidence that the stance taken by these countries are prepared beforehand and are aggressive to Iraq, regardless of how positive its positions are.

U.N. Inspection Team Leader

NC0608115891 Paris AFP in English 1145 GMT
6 Aug 91

[By Maher Chmayelli]

[Text] Baghdad, Aug 6 (AFP)—The fourth U.N. nuclear inspection team to Iraq remains dissatisfied as authorities have still failed to respond to most of the experts'

demands, the mission leader told AGENCIE FRANCE-PRESSE Tuesday. "We have asked a large number of questions but the answers and data have not yet come for most of them," said David Kay of the International Atomic Energy Agency (IAEA).

The 28-person team comprising members from nine countries arrived in Baghdad on July 28 and is expected to leave Saturday. Kay said they had begun making surprise inspections Sunday, but did not disclose which facilities were visited. "We made (four) surprise visits in the last two days ... and we had no problem in gaining access to the facilities," he said prior to leaving his hotel on another tour.

IAEA inspectors including Kay had encountered difficulties during their second visit to Iraq in June, when authorities refused to grant access to several sites. On one occasion, soldiers shot over the heads of the officials as they tried to photograph vehicles suspected of containing nuclear equipment.

Western nations condemned Iraq's violation of U.N. resolution 687, which set the ceasefire terms for the Gulf war and calls on Baghdad to reveal all its non-conventional arms facilities for destruction by U.N. experts. The United States, Britain and France threatened renewed aerial attacks on the sites unless Iraq proved completely cooperative.

Kay said his team had not been able to confirm U.S. reports that Iraq possessed 44 kilograms (97 pounds) of highly enriched uranium, adding "we are still looking. We don't rule it out."

"It is clear that it is not a peaceful program in terms of its intent. And we are trying to assess the progress they made," he said. Iraq has repeatedly said it only developed 500 grams (1.1 pounds) of lightly enriched uranium. IAEA experts estimate that 25 kilograms (55 pounds) of the weapons-grade chemical are needed to produce an atomic bomb.

Kay did not reveal whether Iraq had been capable of producing a nuclear bomb prior to the start of the Gulf crisis on 2 August 1990. He voiced concern that Baghdad may be capable of building weapons with plutonium, a fissionable material of which it has admitted secretly producing three grams (one ounce).

Kay said the team was primarily looking into three methods of enrichment. Iraq had advanced furthest with a technique called electromagnetic separation of isotopes (EMS) started in the early eighties, he said. "Iraqis also concentrated on a chemical method designed by the French," but which Iraq managed to improve, Kay added. The final method is centrifugation, which Iraq started between 1986 and 1987 and has since improved.

Biological experts from the delegation Monday visited the first biological facility identified by Baghdad and team leader David Kelly said they had made progress in their search for bacteriological weapons.

"We have made some progress today. I think the United Nations should be the first to know about (it)," he said on returning from the Salman Pak plant, 35 kilometers (23 miles) south of Baghdad. Iraq on Monday admitted to having a bacteriological weapons program but said all projects had been frozen in the fall of 1990.

PAKISTAN

Nuclear Breakthroughs, Laser Export Reported

9IASI293A Karachi DAWN in English 19 Jul 91 p 7

[Article by Azim Kidwai: "Kahuta Still on Top"; first paragraph introductory comment highlighted in bold frame]

[Text] Big consignments of the laser range finder were lately exported to a friendly Muslim Middle Eastern country. A refreshing aspect of the deal is that the Pakistani range-finder could compete with Western gadgets of the same type that were in the race for the bid. This is an exhilarating news indeed to be broken by the Science Column.

Since the laser entered as a tool for uranium enrichment some 7 years back, a lobby in Pakistan that wanted somehow to downgrade the achievement at Kahuta, started boosting the image of laser as "the world's best way of enriching uranium." Quotations often appeared in articles as if the centrifuge (the technique used at Kahuta) had been discarded by the advanced countries.

In reality nothing of the sort had happened and centrifuge technology was the most viable of all methods though laser had appeared on the scene only as another option with good promise, and some people in the business hoped that laser may turn out as the most profitable work-horse for uranium enrichment.

Even today, 7 years after laser came from behind as a potential competitor to centrifuge, the latter technique holds its grip on uranium enrichment industry. The latest proof are the market forces in the USA.

A big enrichment facility, the first major uranium enrichment plant in more than a decade in that country, is on the anvil in Louisiana, based on centrifuge. It has a big capacity of about 1,500,000 SWU/y.

The plant is to be operational by 1995.

Reporting in its June 1991 issue, the prestigious NUCLEAR ENGINEERING INTERNATIONAL says, "Louisiana Energy Services (LES) was formed as a limited partnership last year to build the first privately-owned uranium enrichment facility in the United States. The plant design is based on the experience gained in the construction of similar facilities at Urenco's Capenhurst, Almelo and Gronau plant." These plants use the centrifuge technology.

There are many angles in a venture financed by the public sector (such as benefits accruing to defence), but in a privately-owned big industrial complex no such considerations prevail; the technique selected is that which is commercially the most viable.

Another point needs to be underlined in this context:

Uranium

The reputed science journals hardly ever put laser on top in the context of uranium enrichment in the present scheme of things. In its issue of August 1986, the NUCLEAR ENGINEERING INTERNATIONAL under the caption "Centrifuges reach industrial and commercial maturity" had to say, "The gas centrifuge is not only considered more than a match for lasers at least for the rest of this century, but also the particular technical characteristics of the process make it especially suitable for re-enriching reprocessed uranium."

The Louisiana scene almost clinches the issue. Thus no doubt, Pakistan still has the best technique to enrich uranium, at least up to the end of the century.

Enrichment of uranium is necessitated, as the real meat—the U-235 (uranium-235) isotope of uranium, comprises less than one per cent (0.7 percent in actual fact) of the uranium ore dug out of the crust of the earth. Its percentage, invariably, has to be increased in the uranium mix, the other isotope, Uranium-238 (U-238) being predominant in the ore.

Thus the percentage of uranium-235 has to be upgraded to 3 to 4 percent when fuelling of over 90 percent of the world's power-producing reactors is the objective. In the case of the bomb, the percentages has to go up to 90 percent or more. All such requirements need enrichment of uranium.

There are three different processes that have turned viable and can be used in any commercial uranium enrichment plant, the centrifuge having an edge over the other two so far.

The oldest is what is called the diffusion process. The first diffusion plants got installed in the USA over 45 years back and the earliest enriched uranium was used in the Hiroshima bomb (the Nagasaki bomb was a plutonium bomb, so was that detonated by India in 1974 in Rajasthan).

Frequency

In the diffusion process, gaseous uranium (in hexafluoride form) is made to pass through porous filters. The uranium-235 molecules being a little lighter, travel faster and can pass in greater numbers than the heavier uranium-238 molecules. As a consequence, in the next stage the uranium mix is a bit "richer" in uranium-235 molecules.

This goes to the second stage that makes it a bit more "richer," and so on. Thousands of such diffusion stages

yield a "richer" uranium mix of 3 to 4 percent of uranium-235. To get bomb-grade uranium many more thousands of stages are required in series.

The process is cumbersome, highly power-intensive and quite expensive.

Since early 1970s, therefore, many countries turned to gas centrifuge technology which is less expensive and consumed only about one-tenth electrical power as compared to diffusion plants.

The ultra-centrifuge is a machine that rotates at terrific speeds of 80,000 revolutions per minute or more. When the two isotopes of uranium are in the machine, it spins the heavier uranium-238 towards the rim and thus the lighter uranium-235 can be skimmed off. Again, in many stages the required enrichment is possible.

The newest technology using lasers for enrichment works on quite a different principle. The difference of atomic weights in the two isotopes of uranium is not exploited; instead it is the frequency of the laser that knocks off an electron from one of the isotopes of uranium, turning its atom with a positive charge (electron has a negative charge). With that change, because the atoms of one isotope are positive, an electrical field can engineer their separation from the other isotope whose atoms are with neutral charge.

Diffusion

The laser has to be tuned to a very precise frequency to rip off the electron of a breed of atoms.

Kahuta has not exploited laser for uranium enrichment as there is yet no need to go over to such a process, the centrifuge holding sway as commercially the most viable of all the processes.

In fact, a new breed of advanced centrifuges has since been produced abroad and these machines are reputed to consume only 2 percent of the electrical power compared to diffusion plants.

It is reliably learnt that the research and development at Kahuta is also geared towards such an end though its older machines are 10 percent as power-intensive as the diffusion plants.

Though not using laser for enrichment of uranium, the Kahuta team, led by the legendary Dr. A.Q. Khan, has been exploiting the technology in other areas.

In the field of defence production, a laser range-finder (range: 150 to 15,000 metres) has been perfected for the defence machine of the country to be used with cannons and other weapons. An added plus point about this sophisticated gadget is that it is being exported and earning fat packages of foreign exchange. [passage omitted]

PRC Readiness for NPT Will Not Affect Stance
*BK1108050091 Islamabad THE MUSLIM in English
11 Aug 91 p 1*

[By Mohammad Saleh Zaafir]

[Text] Islamabad, Aug. 10—China's readiness to sign NPT [Non-Proliferation Treaty] will not affect Pakistan's position towards this treaty.

Commenting on China's announcement, a spokesman of Pakistan Foreign Office told THE MUSLIM on Saturday evening that Pakistan will not change its position regarding the NPT. Pakistan thinks if India signs NPT, Pakistan will be ready to sign it without any delay.

To a question the spokesman said China is authorised to keep nuclear weapons by virtue of an international understanding and signing of NPT by it will not close the option of keeping nuclear weapons.

He said in case India or Pakistan signs the NPT, it will close the option of keeping or developing nuclear

weapons. Official comments of the Foreign Office on China's preparedness to sign the treaty would be available in a couple of days.

PRC To Discuss Arms Control, Nuclear Issues

*BK1208030491 Islamabad Radio Pakistan Network
in Urdu 0200 GMT 12 Aug 91*

[Text] A high-level delegation led by Senate Chairman Wasim Sajjad left Islamabad for Beijing last night on a five-day official visit to China. Talking to newsmen before his departure, the Senate chairman said they will discuss with Chinese leaders matters relating to regional and international issues and bilateral relations. He said the prime minister's proposal for arms control and nuclear nonproliferation in South Asia will figure prominently during the talks. Answering a question, Wasim Sajjad said talks will also be held on China's proposed willingness to sign the Nuclear Nonproliferation Treaty.

The delegation includes Akram Zaki, the secretary general of foreign affairs, and other senior officials of the Foreign Office.

Bush, Gorbachev Comment on Proliferation Threat During Summit

*PM0108125191 Moscow PRAVDA in Russian 1 Aug 91
Second Edition pp 4-5*

[TASS report: "Soviet and U.S. Presidents' Joint Press Conference"]

[Excerpts] M.S. Gorbachev and G. Bush held a joint afternoon press conference 31 July. Before answering journalists' questions, the presidents made brief statements. [passage omitted]

[Journalist] I should like to recall the meeting in Reykjavik in 1986. At the time U.S. nuclear experts and all Europeans were seriously examining your proposals, Mr. Gorbachev, for a total ban on nuclear tests. But at the time they believed that nuclear deterrence was maintaining peace and at the time you had the nuclear advantage. After that the treaty on intermediate-range missiles was signed. Do you still believe that nuclear deterrence strengthens peace? After all if your country collapses, the republics will have nuclear weapons.

[G. Bush] I do not think that any seceding republics will use weapons against the United States. But we believe that we are indeed worried about the possible emergence in the world of cases of such people having nuclear weapons. That is why in the Senate now we are examining programs for curbing the proliferation of nuclear weapons. Other countries do indeed have nuclear weapons. Not only the United States and the Soviet Union. And we believe that we are now proceeding along the correct path. The path defined today by President Gorbachev in concluding the existing agreement—that is it is hardly necessary to give a utopian reply, let's think in practical terms, as he suggests. As far as the United States is concerned, we should also like to elaborate a system which would not entail any danger, danger of an accidental launch. I think that here we can also use the experience of the Iraq war. Of course, President Gorbachev may have a different concept. But here it is a case of the concept of using high technology for defense.

[M.S. Gorbachev] I will say a couple of words about the argument which you want to ascribe to me as though at one time in my policy I viewed nuclear weapons as a deterrent element. You will not find that in my speeches or my position. Yes, we were nearly drawn into a very grave arms race. In simple Russian, thank god we stopped it and not only stopped it but also reversed the process. But it is not easy to rake away this mountain of accumulated weapons and I think there is still a lot of work ahead.

We have already considered a certain amount for the immediate future. Then questions will probably arise for all members of the nuclear club. And they must consider how we are to act with nuclear weapons in future. And finally we must be very attentive in connection with the mechanism which we have created and which has been working, but nonetheless not effectively enough, against

the proliferation of nuclear weapons. For us this subject has been an important one recently in our talks with the President. After all, if some people proceed along the path of disarmament, the path toward a nuclear-free world, while at the same time others find paths to turn the process in such a way as to acquire their own nuclear weapons, an absurd situation will be created. That is why, in continuing and retaining our allegiance to nuclear disarmament and acting within the framework of negotiations processes which we have, we have agreed to continue them.

The question arises of us engaging thoroughly in the improvement of the mechanism for the nonproliferation of missile technology and nuclear technology in order to place an insuperable obstacle on the path of the proliferation of nuclear weapons. I think that today that is a very important task. [passage omitted]

Physicist Makes Case for Keeping Nuclear Arms

*91WC0146A Moscow DEN in Russian No 12, Jun 91
pp 1-2*

[Interview with V.Z. Nechay, doctor of physical and mathematical sciences, professor, Lenin and State prize laureate, and director of the All-Union Scientific Research Institute of Technical Physics, by A. Khokhlov; place and date not given: "Half-Life"]

[Text] This is what our science is now going through, oriented as it is on solving the problem of the state's defense capability. The reasons this is happening have been considered by someone who until quite recently was one of the "secret" people: V.Z. Nechay, doctor of physical and mathematical sciences, professor, Lenin and State prize laureate, and director of the All-Union Scientific Research Institute of Technical Physics, giving his first interview to the press.

[Khokhlov] Vladimir Zinov'yevich: For 32 years you have been engaged in the development and creation of nuclear weapons. Tell us, do we need them now that world politics have started to be built not on strength but on the principles of good-neighbornliness and peace initiatives?

[Nechay] Is this what you think? Politics have always been unpredictable. Just think, who would have thought five or 10 years ago that the world's largest power would be sending tens and hundreds of thousands of its soldiers to restore "justice" on the other side of the world from its own borders.

[Khokhlov] You are talking about the Iraq-Kuwait conflict?

[Nechay] Yes. And also about the military actions of the U.S. Army close to the southern borders of the USSR. Perhaps this was the begining of a new division of spheres of influence in the world—focusing on the struggle for raw materials, which the world's technological-industrial elite must have to survive in this day and

age. In our country it is as if they have already stopped taking this into account in the process of establishing the new "world order," and this is a very alarming symptom. Whether we like it or not, nothing has changed in the world: Only strength is respected. Any weakening of the country's military potential will inevitably entail an economic decline and setbacks in science and industry.

[Khokhlov] So is mankind doomed to an arms race? Nuclear weapons are weapons of mass destruction....

[Nechay] This is a 30-year-old delusion. Yes, they could be used for such purposes. But the machine gun is also a weapon of mass destruction. An ordinary knife can be considered in the same way if it is in the hands of a maniac. In fact, nuclear weapons are designed primarily to destroy military installations.

The Americans realized this before we did, and for quite some time they have regarded nuclear weapons exactly in this way. American scientists understood before we did that the race for superyields—50 megatons, 100 megatons, and so on—was absolutely unjustified. In fact, why do we need superbombs? What we need today is low-yield but highly accurate weapons. If a war suddenly were to begin, there would be no need to destroy New York or Moscow. Strikes would primarily target launch silos, military bases, and command posts. It is one side's destruction of the other side's military potential that will bring victory in an armed struggle between two equal enemies.

[Khokhlov] Fine, but what do you have to say about the environmental contamination that would result from the explosion of a nuclear bomb? What is the use of victory in war if life on earth is no longer possible?

[Nechay] If all the nuclear weapons available to the USSR and the United States were exploded, then, in fact, the consequences for mankind would be horrible. If there were only a few hundreds of explosions (you can check the facts; this is not the cynicism of a "hawk" from the military-industrial complex but a strictly scientific calculation), nothing particularly horrible would occur. We should not forget that tests have already been conducted in the atmosphere. The contamination then was dozens of times less than what we had at Chernobyl and almost all of it went up into the stratosphere.

I believe that our half-baked environmentalists have done more harm to the people's health than all the nuclear tests conducted in the country. Today a frightened and duped people are suffering from fear. Instead of receiving medicine in the form of well-considered scientific information, they are being fed new "horrors." This is pure politicking. Incidentally, the Americans very harshly evicted the leader of the Kazakhstan "Nevada-Semipalatinsk" environmental movement, Olzhas Suleymanov, from Nevada. They are surprising people, these Americans: In Nevada they are proud of the fact that it is in their state that the nuclear tests that enable the United States to remain a superpower are conducted. Or are we the ones who are surprising?

[Khokhlov] The Americans are talking a great deal about the "new thinking," are they not?

[Nechay] In my opinion, they mean something very specific by this: what kinds of unilateral concessions the USSR will make. And they welcome this.

[Khokhlov] I have only a very poor idea of the psychology of our leaders, first and foremost the president. Let me remind you of the first year of perestroika: Gorbachev announced that we would never make military concessions. Eighteen months later he made a 180-degree turn: Total capitulation to American interests. If I may be so bold, all of M. Gorbachev's political successes in the international arena have been achieved by one-sided concessions. To whom? To the United States, to Great Britain, and to Germany. We might justify this by saying: Yes, we do not need so many weapons, yes, we could have dozens of times less and would still be someone to be reckoned with.

[Nechay] But they will stop thinking that way as soon as the parity in nuclear weapons disappears.

[Khokhlov] Is it possible to debate the need for an arms race when the country is in crisis? What are more necessary now—missiles or potatoes?

[Nechay] Only a fraction of one percent of budget resources is being spent on scientific work and nuclear weapons testing. But how much is being spent on agriculture? "Linking" a potato shortage with nuclear bomb production is inconceivable. If the people lack something, it is not the nuclear people's fault. The causes lie entirely elsewhere. But it is very convenient for some people to form a new image of the enemy. So now they are creating it out of the defense industry, the military-industrial complex. In fact, at all levels here there is an inability to organize the work. Moreover, today the only advanced sector—ours—is being destroyed.

[Khokhlov] Are you referring to conversion in "defense"?

[Nechay] Conversion is necessary. We ourselves have recognized that it is impossible to restrict ourselves only to military research. We must look further afield. This provides, incidentally, a chance to make technical breakthroughs also in the main sphere of activity—weapons.

But conversion in the country has been started in quite an absurd way. First it was simply "recommended" that we convert 10 percent of the institute's potential, with a steady increase to 20 percent by the year 2000. But in two-and-a-half years we have reached 40 percent conversion activity.... It is a good thing that the scientific potential of the All-Union Scientific Research Institute of Technical Physics is great enough for us to have managed up to now to maintain a high level of efficiency in research and development in the weapons sphere. The main difficulty is what we set for ourselves.

[Khokhlov] Going no one knows where and doing no one knows what?

[Nechay] We did not even discuss it. We ourselves believed that if something had to be done, it was necessary to take action on the global scale. We engaged in the development of fiber optics systems, the development and production of computerized X-ray tomography, the manufacture of ultradispersed diamonds [ultradispersnyye almazy] with unique properties, developing a metalworking base for work with highly ductile materials, and many other questions that require a high level of scientific and technical potential and the ability to work to resolve. All of these things are the very latest technologies.

It is possible to route dozens of cable television programs, stereophonic radio broadcasts, and telephone lines through a single strand of a fiberglass cable. By the end of 1992, factories will be engaged in series production of many tens of thousands of kilometers of first-class fiberglass cables. But... Instead of the R60 million we asked for, the Cabinet of Ministers has allocated only R10 million, even though this is a state program.

It is the same with the development of computerized X-ray tomography. We buy this equipment in the West, paying more than \$1 million for each unit. In late June, our all-Union scientific research institute was assembling a Soviet-built unit at a cost of R1.5 million, in last year's prices. The medical people need it, but they are poor. What about the government? Or is it more profitable to buy them from the West using hard currency?

The position with regard to the diamonds is the same, with universal metalworking rolling mills still using the so-called "potter's wheel" technology. This makes continuous metalworking possible. In the West it is still being mastered only empirically, but already has been included on the Cocom "black list": Do not give it to the Russians...! But we have made this development based on the institute's scientific achievement. No one believes that we could do this in a Soviet Union wracked by crisis. Unfortunately, our leadership also does not believe it. So, no matter where we "turn," no one is as advanced as we are in the development. To make up for this, in five or 10 years we will again be unanimously admired by the Americans or Japanese.

[Khokhlov] Why is this happening?

[Nechay] It seems to me that the country's leadership is now more interested in words than deeds. Many government decisions are totally devoid of healthy common sense.

World experience shows convincingly that during its initial stage, conversion requires significant financial outlays. Here we are trying to do it by removing from the "defense people" what they had previously. Funding has simply been cut off. But, pardon me, people must be paid. Here, a search for the trivial has started, something

that can be put in motion without particular effort. Highly skilled associates are starting to do trivial work. Specialized plants are being converted to the production of saucepans. This is the degradation of a leading sector.

Valentin Pavlov evidently does not think of the return that "defense" may generate in five years, as his task is to rob the enterprises now to somehow bring expenditure into line with earnings. He does not give a damn for anything else.

Today, a crime is being committed: The country's scientific potential is being destroyed.

[Khokhlov] According to your predictions, for how long will it be possible to sustain science with this kind of attitude toward it?

[Nechay] The degradation of our scientific sector has already begun and has been quite precipitous since 1985, when a unilateral moratorium was announced on nuclear testing. When that moratorium was announced we were not asked what we, the scientists, would lose, what the country would lose. It was believed that the party general secretary understood this better than we did....

The trouble lies not only in the government cutting off our funding. The nuclear workers and weapon makers have been operating for a long time on minimum funds and have still been able to maintain nuclear missile parity with America. The trouble is that we are not able to work and do research normally.

Here we should not forget that we are also discussing the country's security. If we want to guarantee the security of our people and of all mankind, we simply must show concern to strengthen the state's defense capability. Today, the main guarantee of security in the world is nuclear weapons. Reagan and Thatcher understood this. Bush understands it, as do the leaders of France and China. So nuclear testing and weapons improvement continue in the world. Last year, 1990, the United States conducted nine tests, France conducted five, China two. It was only we who "eliminated ourselves" by allowing other countries to make a technological breakthrough to develop a new generation of weapons. Thus, the hands of the aggressor who may impose his diktat on the world, us included, by the threat of the use of those weapons have been untied.

[Khokhlov] Is it still possible to halt the "half-life" of science and the degradation of the defense industry?

[Nechay] It is. It is still possible. What is needed is to conduct at least a minimum number of tests. The compensation for their inadequacy can be the powerful development of an experimental base.

[Khokhlov] They are now saying that the military-industrial complex is the main brake on the road of

perestroyka and democratization. Is this true, are you "applying the brake"?

[Nechay] It is only on us that the brakes are "being applied." But when this is done, it is forgotten that this also applies the brakes to the rest of the country. Behind the vacant talk about politics, many people are now forgetting that only the scientific and technical revolution can move us along the path of progress. Unfortunately, minds are now occupied with something quite different. If this goes on, we will lose what we have.

Are we, then, crossing a dangerous line? Perhaps we should stay where we are and consider it for a while.

Defense Minister Confirms Missiles Sold to Europe

*LD3107165791 Moscow Radio Moscow World Service
in English 1600 GMT 31 Jul 91*

[Text] Soviet Defense Minister Dmitriy Yazov has confirmed that the Soviet Union sold intermediate range missiles to some East European countries.

The Bulgarian daily ZEMEDELSKO ZNAME quotes Yazov as saying that these missiles, without nuclear warheads, had been sold to Czechoslovakia, Bulgaria, and the now nonexistent [as heard] German Democratic Republic three or four years before negotiations on scrapping that class of missiles got under way.

AUSTRIA

Firm Freed of Suspicion on Breaking Iraq Embargo

AU1408130491 Vienna DER STANDARD in German
13 Aug 91 p 16

[Monika Bachhofer report: "LIM May Wash its Hands of It"]

[Text] Vienna—Oskar Schmidt, Austria's "most colorful entrepreneur," art collector, Harrach Palace dealer, and owner of "LIM Kunststoff Technologie" company, may be pleased.

The Eisenstadt [Burgenland] public prosecutor's office has now confirmed that the accusations leveled by the Economics Ministry against him and LIM Manager Heinz Geretsegger in connection with exports to Iraq were not justified. As Senior Public Prosecutor Erich Wetzer confirmed upon inquiry by DER STANDARD, the complaints filed because of the "suspicion" that LIM exports to Iraq "violated the Military Materiel Law and the Foreign Trade Law" were withdrawn for lack of evidence.

The comprehensive investigations ordered by the public prosecutor's office and two technical reports by criminal investigation experts showed that the LIM factory offered to the Iraqis for the production of the chemical substance HTPB (hydroxy terminated polybutadiene) should indeed have been built for the production of (a planned number of 14,000) tractor tires—that is, for civilian purposes. The complaint also expressed the suspicion that HTPB was supposed to have been used as a bonding agent for solid missile propellant and thus accelerated Saddam's armament.

According to a 1989 business agreement, Schmidt should have constructed the 230-million-schilling plant by 31 March 1991. In early August 1990, Iraq attacked Kuwait, to which the United Nations—and Austria along with it—responded by imposing a trade embargo as of 16 August. As was reported earlier, as of then LIM suddenly came under yet another suspicion. Based on information received from the U.S. Embassy, the Economics Ministry conveyed to the public prosecutor a list of companies that might have broken the embargo; the list was headed by Oskar Schmidt's LIM.

What Geretsegger confirmed to DER STANDARD in this connection last year has now been certified by the public prosecutor, too. There were no LIM exports to Iraq during the trade boycott. Geretsegger has now said: "The ministry's complaint was a rather hasty reaction."

Nevertheless, it seems that the UN embargo will continue to cause some trouble to the LIM managers in the future as well. According to the lawyer of the two LIM men, the Iraqis currently hold the view that "by observing the embargo and thus failing to fulfill the agreement, LIM is to be blamed for the failure of the

deal." The lawyer said that therefore was now the worry "that the Iraqi partner in the deal wants to get hold of the 22 million schillings that were deposited at the CA bank as a guarantee for the fulfillment of the agreement." Another 70 million schillings—for components or plans of the plant, raw materials, and know-how—have not yet been paid for anyway.

Therefore, preparations have been made for filing a complaint against Iraq for 170 million schillings at the International Chamber of Commerce's court of arbitration.

GERMANY

Firms Top List of Iraqi Chemical Suppliers

LD0608094891 Hamburg DPA in German 0733 GMT
6 Aug 91

[Text] Hamburg (DPA)—German firms are said to have supplied Iraq with much more material for its chemical arms program than has been assumed thus far. According to NDR (North German Radio—DPA) information, this emerges from a preliminary list drawn up by UN inspectors in Iraq. Suppliers from a total of 13 states are listed, with German firms taking first place, the station reported on Tuesday. Until now the United Nations had refused to publish the information to avoid making criminal proceedings more difficult; however, individual states were informed in reply to inquiries.

According to the NDR, it still has to be clarified whether the materials supplied were clearly intended to support the production of C [chemical] weapons or whether exports for "dual use" were involved. Such products can be used for civilian as well as military purposes. The Commission had stated that every government would on request be furnished with the company names together with evidence for possible criminal proceedings. The Darmstadt public prosecutor's office would be in charge of this affair.

Share in Iraqi Poison Gas Production Investigated

AU12080791 Berlin BERLINER ZEITUNG
in German 7 Aug 91 p 4

[DDP report: "German Subcontractor Products for Iraq's Chemical Weapons"]

[Text] Hamburg—The involvement of German companies in Iraq's poison gas production can now be further cleared up, according to a report by Northern German Radio (NDR). The first UN inspection team to investigate Iraq's stocks of chemical weapons has drawn up a comprehensive list of subcontractor companies for Iraq's poison gas production, NDR reported yesterday. The list reportedly comprises companies from 13 states, with German companies being listed at the top.

Iranian Petrochemical Firms Receive Loans

*LD1308154291 Hamburg DPA in German 1152 GMT
13 Aug 91*

[Text] Frankfurt (DPA/VWD)—German credit institutions are financing petrochemical projects in Iran for a total of 510 million German marks. The Deutsche Bank, the chief underwriting bank, announced in Frankfurt today that the individual contracts will be covered by Hermes guarantees from Bonn or by guarantees from the Bank Mellini Iran in Tehran.

The recipient of the loans is the National Petrochemical Company in Tehran, a subsidiary of the National Iranian Oil Company. The money will be used to finance German products and services for the reconstruction, modernization, and extension of petrochemical projects. Besides the Deutsche Bank, the bank syndicate includes the Commerzbank, the Dresdner Bank, and the Societe Generale - Elsässische Bank. The credit size was arranged in cooperation with the Societe Generale in Paris, which has made similar agreements with European countries.

Schaeuble on Schalck-Golodkowski, Arms Deals Link

*LD1508141491 Hamburg DPA in German 1126 GMT
15 Aug 91*

[Text] Bonn (DPA)—Talking to the press in Bonn today, Interior Minister Wolfgang Schaeuble advised that caution be exercised regarding the alleged involvement of Schalck-Golodkowski in arms deals of the Federal Republic and in the submarine deal with South Africa. He had his doubts about corresponding information supplied by a former Stasi [State Security Service] member. Schaeuble stressed that he had no information that could confirm Schalck-Golodkowski's involvement in western Germany's arms deals. The minister said that he would be happy to give evidence to the investigation committee as soon as possible. Commenting on alleged close ties between Schalck and Schleswig Holstein Minister-President Uwe Barschel, who died under mysterious circumstances, Schaeuble said that he thought the whole thing was far-fetched. He has no knowledge and no information on this matter. Talking again about ties with Schalck, Schaeuble also defended former Bavarian Minister-President Franz Josef Strauss. Schalck-Golodkowski was a reliable partner in the negotiations and was the official leader of the negotiations for the former GDR.

HERA Stores First Protons

*91MI0378X Bonn WISSENSCHAFT WIRTSCHAFT
POLITIK in German 22 May 91 pp 4-5*

[Text] Protons have now been successfully stored for the first time during the gradual entry into service of the new accelerator at the German Electron Synchrotron (DESY) - a significant milestone that demonstrates the operational efficiency of the HERA hadron electron ring

accelerator's superconductive proton storage ring. (Protons belong to the group of elementary particles known as hadrons.) After flying through a chain of preaccelerators, in which the protons are grouped into small bundles and their energy is gradually increased, they have for the first time been steered into the HERA ring.

Several times during this test run, a single bundle of protons was successfully circulated in HERA. Each bundle has an intensity of between 100 million and 10 billion protons, and a maximum "life span" of 30 minutes was recorded, which meant that half the particles stored were still present after 30 minutes. The purposes of the proton storage ring's first test run were to bring a number of technical components into service and to store a proton beam in HERA, thus provisionally determining important parameters for the accelerator. It was successful on both counts.

The next stage will consist of the first test on HERA's superconductive high-frequency acceleration sections, which complement its normally conductive sections and are needed to accelerate the electron beam to the desired energy of 30 billion electronvolts. HERA's gradual commissioning of HERA will continue until fall of this year. In early November, the two large demonstration units "H1" and "ZEUS" will be brought into the accelerator and connected up, so they will be able to measure the first electron-proton collisions in HERA before the end of this year. HERA is a unique new large-scale facility for research into elementary particles, where 700 physicists from all over the world will carry out research into what are termed deep inelastic electron-proton collisions at the German Electron Synchrotron. The electrons and protons circulating in HERA at almost the speed of light are brought together at two points, where they collide at high energy, thus permitting experimental research into structures measuring as little as 0.000,000,000,000,1 meters. These physicists hope to extend their knowledge of the microcosm, the structure of matter, and fundamental forces. HERA is the first accelerator to store and bring different types of particles into collision: electrons (which form the outer layer of all atoms) and protons (which are components of all atomic nuclei). The 6,336 meter long subterranean tunnel contains two storage rings, one on top of the other, in which the electrons will be accelerated to an energy of 30 gigaelectronvolts (GeV), and the protons to 820 GeV. Owing to its high energy, the proton beam is held and focused on the track with 646 superconductive magnets. This is no easy task, when one considers that superconductivity does not occur until a temperature of 4.6 Kelvin (-269° Celsius) is reached, and this value has to be kept absolutely stable to avoid a sudden reversion to the normally conductive state, which would entail loss of the beam and a long standstill in the experiment. The superconductive components have been developed by DESY in close collaboration with other research institutes and industry, and produced in the required quantities by industry.

Karlsruhe Research Center Presents Gyrotron
91MI0344X Bonn WISSENSCHAFT WIRTSCHAFT
POLITIK in German 17 Apr 91 p 7

[Text] The Karlsruhe Nuclear Research Center (KfK) exhibited an original gyrotron with dedicated measuring desk at this year's Hannover Industrial Fair to exemplify its large number of technical developments in nuclear fusion technology. Gyrotrons are very high-performance transmitters that heat the plasma in a fusion reactor to igniton temperature by microwave radiation.

The Nuclear Research Center intends its work on nuclear fusion to contribute toward opening up a promising future energy source. It will use the energy released during the fusion of light atomic nuclei, initially of heavy (deuterium) and superheavy hydrogen (tritium). Research work throughout the world is concentrating on the Tokamak reactor, where the fuel is enclosed contact-free by magnetic fields as completely ionized plasma at a temperature of 100 million degrees. The nuclear fuel tritium is produced from lithium in a blanket surrounding the plasma by means of the neutrons released by the fusion reaction. Thermal energy utilized for power generation is also produced in the blanket. The KfK's work is carried out by a "nuclear fusion development association" set up jointly with the Max Planck Institute of Plasma Physics in Garching in 1982 and is an integral part of the European fusion program.

In the case of the gyrotron presented by the KfK, an electron cavity beam is directed along a homogeneous magnetic field in the electronconductive tube, which is open on one side, i.e., a cavity resonator. The electrons spiral around the magnetic-field lines like the electrons in the fusion plasma.

As the electrons oscillate in time with the electromagnetic wave in the cavity resonator, their energy is transferred to it with particular effect. The electromagnetic wave thus carries a substantial proportion of the electrical output of the electron beam along with it and, upon reaching the open end of the resonator, is oriented, radiated, and transported to the plasma via waveguides.

ITALY

Physics Institute Builds Particle Accelerator
91MI0300X Milan ITALIA OGGI in Italian 23 Apr 91
p 18

[Text] The construction of the Dafne accelerator has begun in Frascati. The construction work is taking place in the same building that houses Adone, the same kind of accelerator which has been in operation since 1968 and which will be dismantled. A total of 70 billion lire in funding has already been included in the INFN's (National Institute for Nuclear Physics) five-year plan.

Why another particle accelerator? "Because this latest model features a 'luminosity' that makes it unique in the

world," replied Enzo Iarocci, head of the INFN laboratories in Frascati. Its operating principle, the accumulator rings, is not new. Electrons are accelerated in one ring and positrons, particles with the opposite charge, are accelerated in another. Once the desired energy has been reached, the two beams are made to collide. Their head-on collision, with ensuing destruction, generates a "sun," a new subatomic particle with an extremely short lifespan: the phi meson. The innovation lies in the fact that this gives rise to numerous collisions and hence numerous "suns": 10,000 phi per second. This means approximately 10 billion phi a year. Iarocci explained: "By observing so many events, we can gather the information needed to acquire a better understanding of these rare processes."

The machine, which produces so many phi, is also called a "phi factory," but is also a factory of k mesons, because each phi divides into two extremely low energy k's. This is another characteristic that makes Dafne unique. In fact, when it begins operating - planned for 1995 - low energy k's will permit certain aspects of subnuclear interactions to be examined. Iarocci added: "In particular, it will be possible to study the violation of the charge parity (CP) symmetry, a process discovered in 1960, but still not fully understood. The exceptional number of events and the particular testing conditions of the new machine should facilitate the development of similar programs."

There is a lot of talk about increasingly high energies in the field of accelerators. The energy generated by the renowned American SSC (supercollider) is 40 trillion times greater than that of Dafne. Since the ultimate goal is to find out about "the building blocks of the universe" and the forces that keep them together, the implications of using such widely differing energies naturally come to mind. As Luciano Mandelli, manager of INFN in Milan, explained: "Both lines of research using either extremely high or low energy are necessary. The tests to be carried out with Dafne involve making extremely accurate and advanced measurements in a known field. Instead, history has shown that working with extremely high energies means discovering something completely new, finding something needed by the theory. Therefore, the major topics in this field are: the discovery of the originating particle of mass (Higgs boson), finding the top quark and verifying that for each existing particle there is another (the supersymmetrical particle) that differs in one single characteristic (the spin)."

Researchers operating in other areas of physics maintain that "particles" are granted most of the government funding in Italy. What is Mandelli's opinion? He replied: "Comparisons should be made between research programs and their real financial needs as well as the ability to make the most of funding. This is certainly the case of high energy researchers, both in view of the excellent Italian school established by Fermi and numerous international contacts."

UNITED KINGDOM**Government Denies Breach of Arms Embargo on Iraq**

*LD0808165291 London PRESS ASSOCIATION
in English 1628 GMT 8 Aug 91*

[By Chris Moncrieff, PRESS ASSOCIATION political editor]

[Text] The government today denied claims that the arms embargo on Iraq was systematically breached by the alleged export of weapons, chemicals and other materials that could have helped Saddam Husayn's war effort. Trade and Industry Secretary Peter Lilley said Labour leader Neil Kinnock now had "quite a few of his own words to eat."

Mr Lilley said four main conclusions—reached after checks by his department for the period since 1987—gave the lie to allegations that the embargo was systematically breached. These were:

- No chemical weapons precursor (or key ingredient) was licensed for export to Iraq and none was exported there;
- There was no export of any significance to a military nuclear programme;
- No instance of goods being licensed in contravention of the arms embargo announced in parliament in 1985 was found, except for cases where legal action was being taken;
- No licences for export to Iraq or Kuwait, let alone for sensitive chemical or nuclear materials, were authorised after the invasion of Kuwait.

This information, presented today to the Commons select committee on trade and industry, follows the outcry after publication by the committee of tables of materials provided by the department.

Mr Lilley today told the PRESS ASSOCIATION: "It is only right that those who asked genuine questions about this should have done so. But some people like Mr. Kinnock and Mr Gordon Brown (shadow trade and industry secretary) made assertions that we were systematically breaching the embargo. That has been equally systematically shown to be untrue and they have quite a few of their own words to eat."

A statement issued by the department said it was now known for certain that no chemical weapon precursors were exported to Iraq between 1987 and August 1990, when the invasion of Kuwait occurred. No evidence has come to light that any chemical weapon precursors were exported between 1985-7, but further checks were being carried out.

Liberal Democrat Menzies Campbell, a member of the select committee, said the information disclosed by Mr

Lilley would require expert interpretation. "Having first starved us of information, Mr Lilley is now trying to drown us in detail," he said. "The complicated nature of this new information, which requires detailed technical knowledge for its proper understanding, makes it vital that the trade and industry committee should be recalled before parliament is due to sit again." Mr Lilley should be called to give evidence in person, he added.

Components for 'Spy Satellite' Exported to Iraq

*LD1108080191 London THE SUNDAY TELEGRAPH
in English 11 Aug 91 p 1*

[Report by Robert Matthews and Toby Helm]

[Text] The Department of Trade and Industry [DTI] approved exports to Iraq of key components needed to build a satellite for spying on British allies in the Gulf.

Documents released last week by Mr Lilley, the Trade and Industry Secretary, show that Iraq was sent parts necessary to build a small surveillance satellite capable of being launched into low earth orbit.

Defence analysts are convinced that the electronic, power supply and computer components listed in DTI documents were destined for Iraq's satellite spying programme.

Last night Mr Gordon Brown, Labour's trade spokesman, said: "I will be raising with the Prime Minister the unanswered question about whether equipment for a spy satellite did leave Britain for Iraq and, if this is the case, why we were contributing to Saddam Husayn's war effort in this way."

Yesterday the DTI said the parts did not break the Iraq arms embargo, which covered only "lethal" equipment. "This material would have been fully examined by the Inter-Departmental Committee on which the Ministry of Defence, the Foreign Office and the DTI are represented before being exported," it said.

Even before the Gulf war, Iraq was aware that it needed the ability to monitor the activities of its neighbors - especially Israel. Its failure to see allied movements during the conflict is believed by defence analysts to have played a key role in its defeat.

Iraq spent huge sums developing a spy satellite. THE SUNDAY TELEGRAPH has discovered that in 1989 Iraqi agents tried to enlist the help of British space scientists. However, the scientists involved—Prof Martin Sweeting and his team at Surrey University—refused to deal with them.

"We listened to what they wanted, but decided it wasn't a good idea to get involved," Prof Sweeting said. "Their main interest, they said, was in space science. But we would have been naive to believe that." He said that the Foreign Office had contacted him to find out what the Iraqis had requested.

Later the same year, Iraq launched a 48-ton, three-stage rocket capable of putting a spy satellite into low orbit. But American tracking stations reported that the payload failed to reach orbit and burnt up on re-entry.

Last week, in response to pressure from Labour MPs [Members of Parliament], Mr Lilley released a full list of goods licensed for export between 1987 and August 1990 and insisted that Britain had observed the terms of the arms embargo in full. The documents showed that no equipment which would make a contribution to the build-up of nuclear weapons was licensed for export by British companies to Iraq.

The information did, however, show that equipment that enhanced Saddam's military power, such as aircraft engines, had been licensed as non-lethal when the embargo was in force.

—Christy Campbell writes: A British electronics company supplied an advanced spy-proof radio system last year to Saddam's office, allowing him to communicate with his security services and secret police without other intelligence services listening in.

Thirty Cougar radio sets were supplied direct to the office of the president, according to the list of products licensed by the DTI for export to Iraq. The full list was published last week after pressure from MPs.

The radio sets were supplied by the Racal electronics company of Reading in a deal worth 212,628 pounds sterling. This was just one of many cases of advanced coding machines and scrambling devices sold to Iraq by Britain.

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